

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NORTH CAROLINA
CHARLOTTE DIVISION
DOCKET NO. 3:19-cv-00583-MOC-DSC**

TWIST, INC. and BOOM AIR, LLC,

Plaintiffs,

vs.

B GSE GROUP, LLC,

Defendant.

**CLAIM CONSTRUCTION
ORDER**

THIS MATTER is before the Court on the parties’ respective motions and briefs (#s 34, 35, and 36) for the construction of certain claim language in U.S. Pat. No. 6,821,201 (“the ’201 patent”) and U.S. Pat. No. 9,365,297 (“the ’297 patent”) (collectively, “the patents-in-suit”). Plaintiffs Twist Inc. and Boom Air LLC have alleged that Defendant B GSE Group LLC (“BGSE”) infringed these two patents. The Court held a claim construction hearing on March 10, 2021. Having considered the briefing and arguments of counsel and reviewed the claims, specifications, and other relevant evidence, the Court now construes the disputed terms at issue.

I. Background

The patents-in-suit disclose a device and method for supplying conditioned air for heating and cooling an aircraft while it is stationary on the ground with a supply hose extending and retracting from a stationary storage container or housing connected to a source of conditioned air. At Twist, this invention is embodied in the company’s Boom Air® Hose Management System. For simplicity, the Court will refer to this device as a “hose management device.” The supply hose is

extended/extracted and retracted from the housing via drive units, which engage the hose and push or pull the hose to and from the storage housing. As such, storage of the hose is managed, the useful life of the hose is prolonged, and conditioned air is supplied to the aircraft without obstruction.

a. The '201 Patent

The '201 patent, titled "Device and a Method for Supplying Conditioned Air to an Aircraft," is owned by Boom Air through an assignment from the inventors Harry Bombardi and Danny Lyons. The patent application that matured into the '201 patent was filed on March 5, 2001, and the patent issued on November 23, 2004. The '201 patent will expire in 2022.

The '201 patent has twenty total claims, four of which are independent claims, i.e., claims 1, 9, 14, and 17, which means these claims stand alone and may be infringed without requiring any other claim also to be infringed. The '201 patent has sixteen dependent claims. Claims 2-8 depend, either directly or indirectly, from Claim 1; Claims 10-13 depend, either directly or indirectly, from Claim 9; Claims 15 and 16 depend, either directly or indirectly, from Claim 14; and Claims 18-20 depend, either directly or indirectly, from Claim 17. Dependent claims are construed to incorporate by reference all limitations of the claims from which they depend. 35 U.S.C. § 112 (pre-AIA), ¶ 4. A dependent claim cannot be infringed unless the claim(s) from which it depends are also infringed. See Wahpeton Canvas Co. v. Frontier, Inc., 870 F.2d 1546, 1553 (Fed. Cir. 1989).

b. The '297 Patent

The '297 patent, titled "Hose Management System for Supplying Conditioned Air to an Aircraft," is owned by Twist through an assignment from the inventors Joe Wright, Frank Bair, Scott Schrinner, and Dave McIntire. The patent application that matured into the '297 patent was filed on February 2, 2008, and the patent issued on June 14, 2016. The '297 patent will expire in 2034. The '297 patent has eleven total claims, two of which are independent (Claims 1 and 3). The '297 patent

has nine dependent claims. Claim 2 depends, directly, from Claim 1. Claims 4-11 depend, either directly or indirectly, from either Claim 1 or 3.

c. The Infringing Claims

Plaintiffs allege that BGSE infringes claims 1, 4, 7, 9, 10, 11, 13, 14, 16, 17, 18, 19, and 20 of the '201 patent through its manufacture, use, offer for sale, sale, and/or importation into the United States of a hose management system called the COOL JET PCAir Hose Retriever. Plaintiffs further allege that BGSE infringes claims 1, 6, 10, and 11 of the '297 patent through its manufacture, use, offer for sale, sale, and/or importation into the United States of the COOL JET PCAir Hose Retriever. Independent Claims 1 and 14 of the '201 patent, as well as independent Claim 1 of the '297 patent, are apparatus or device claims that recite the physical structure of the hose management device that is claimed in the patents-in-suit. Independent Claims 9 and 17 of the '201 patent are method claims, reciting steps necessary to use the hose management device that is claimed. Defendant argues that it has not infringed on any valid patent claims, but that the patent claims forming the basis of Plaintiffs' case are invalid, largely due to indefiniteness.

d. The Invention at Issue

The inventions at issue supply commercial aircraft with conditioned air for heating and cooling while stationary at the terminal. Typically, conditioned air is supplied to the aircraft using a flexible hose connected at one end to the conditioned air supply and the other end connected to the aircraft. When not in use, the hose is stored in a basket near the terminal gate. In use, the entire length of the hose (often 100 feet or more) must be removed from the storage basket and stretched out to eliminate all kinks that might restrict airflow. Frequently, the hose, when stored in the basket, may become bent upon itself, causing undue wear of the hose and predisposing the hose to kink when in use. Doc. No. 1-1 ('297 patent), Col. 1: ll. 16–29.

Some aircraft require one hundred feet or more of supply hose for the conditioned air to reach the aircraft, while others may need much less. When less than the entire length of hose is required, the entire length must nonetheless be removed from the basket to avoid kinking of the hose and restricted airflow to the aircraft. Restricted airflow reduces the heating and cooling of the aircraft. When the aircraft cannot be adequately heated or cooled using air supplied by the ground facility then the aircraft may need to operate its auxiliary power unit (APU), which consumes jet fuel and significantly increases the airline's costs. Id., Col. 1: ll. 33–49.

A need, therefore, exists for a device and a method for supplying conditioned air for heating and/or cooling to a commercial aircraft at the terminal using a hose of the appropriate length (rather than the entire length) that may retract the hose so it is out of the way when it is no longer needed. Doc. No. 1-2 ('201 patent), Col. 1: ll. 38–42.

The invention claimed in the '201 and '297 patents was developed to improve upon the need to safely and effectively provide conditioned air to a stationary aircraft. Instead of utilizing a storage bin, or a rolling spool to store the air-supply hose (both of which possess negative attributes), the invention claimed in the patents-in-suit provides a novel means to safely and efficiently store an air-supply hose that also permits ease of use and long effective-life. To this end, the invention claimed in the '201 and '297 patents discloses an apparatus that contains a housing connected to a conditioned air supply. The housing contains a flexible, accordion-style air supply hose which can be extended or retracted to the appropriate length to reach an aircraft without extending the entire hose length. Within said flexible hose is a tube connected to a source of conditioned air so as to transfer the conditioned air through the flexible hose. The flexible hose, in turn, can be expanded and/or contracted to any length and attached to an aircraft. Thus, conditioned air is delivered to the aircraft via air-supply hose, but there is no longer excess hose potentially causing kinks or damage.

Furthermore, using an automated “drive unit” mechanism attached to the housing, the hose can be automatically extracted or retracted into the housing, permitting ease of use and extending the useful life of the hose. See Doc. No. 1-1 (’297 patent), Col. 1: ll. 66-67; 2:1–49; see also Doc. No. 1-2 (’201 patent), Col. 1: ll. 46-66; 2:1–66.

e. Figures and Specifications of the Patents-In-Suit

FIGS. 1 and 1A of the ’297 patent provide a perspective view and partial cross section view of the patented hose management system 10. System 10 is comprised of a container 12, a mounting system 14, and an air conduit 16. The container 12 has a top 18, a bottom 20, a left side 22, a right side 24, an inlet end 26 and an outlet end 28. The air conduit comprises a hose 42, a reducer 46, and a coupling 48.

FIG. 1A depicts portions of the outside construction, but also portions of the inside construction of the device 10. There is a frame 62 covered with a skin 64 (shown partially removed for clarity) of material such as sheet metal. A middle cap plate 66 separates a larger rear compartment 70 from a smaller front compartment 72. The front compartment has a drive assembly 74 having four-belt drives 75 and a front cap 76 that is aft of the nose cover 30. An entrapment tube 80 and a support beam 82 are in the rear compartment. In FIG. 1A, the entrapment tube 80 is partially removed for clarity.

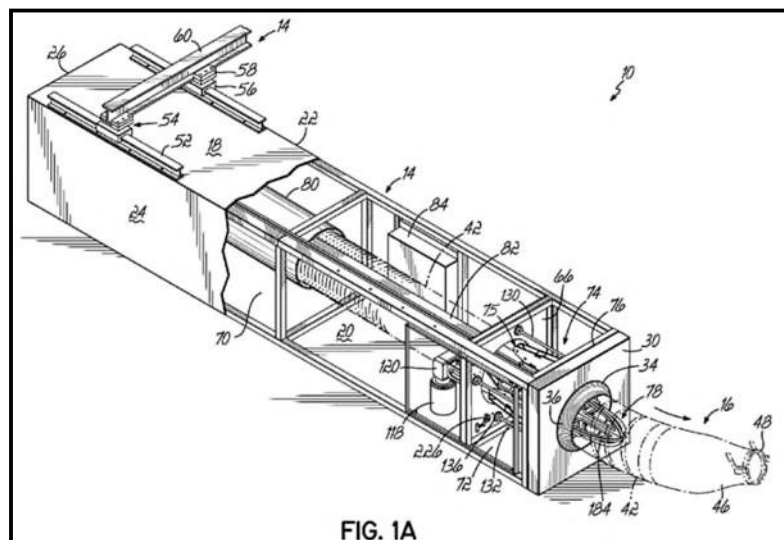
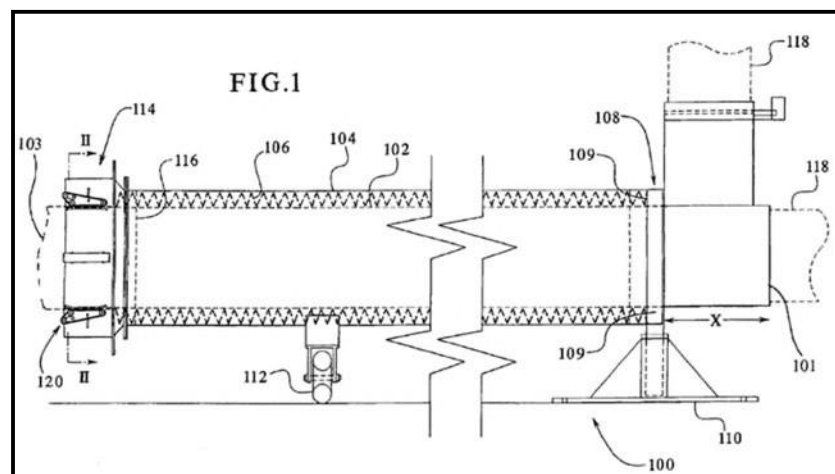


FIG. 1 of the '201 patent shows a cross-section of the hose management device and illustrates a device 100, along with an inner tube 102 within a housing 104. It also depicts a flexible hose 106 and a retractor 14. The housing 104 may be supported by a base 110 at the first end 108 and by a tire 112 at a point near the second end 116. The flexible hose 106 is preferably seventy feet in length and may be stored within the housing 104 and surrounding the inner tube 102. The inner tube 102 may provide support for the flexible hose 106 and the inner tube 102 may supply conditioned air to the flexible hose 106 from a source, such as, for example, a jetway.



With regards to FIG. 2A, the inlet end 26 has a rear cap 86 with an aperture 88 through which conditioned air 90 can flow as indicated by the arrow. Surrounding the aperture is an inner boot 92 and an outer boot 94. The outer boot 94 connects with a facility air supply 96. The inner boot 92 connects with the hose 42. Doc. No. 1-1, Col. 3: ll. 66-67; 4:1-6. Here, the inlet end 26 contains multiple apparatuses (the rear cap 86, the inner boot 92, and the outer boot 94) and requires the connective ability not only with the facility air supply 96 but also the hose 42. Id. The rear cap 86 is spatially defined and covers a portion of the inlet end 26, and the inner boot 92 and outer boot 94, both components of inlet end 26, traverse a portion of the inlet end 26 large enough to be capable of connection/attachment with either the facility air supply 96 or the hose 42, respectively.

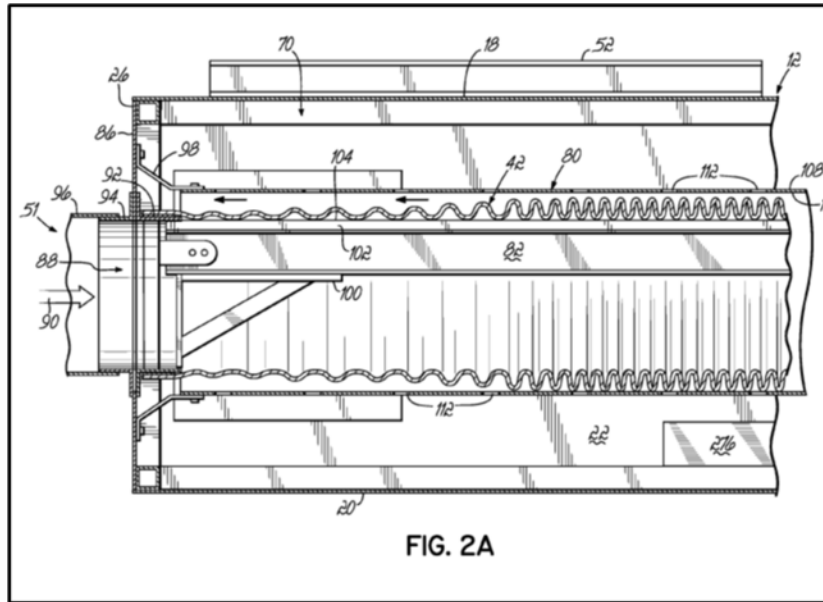


FIG. 2A

FIG. 3 instructs that hose 42 is capable of collapsing into a tight “bunch” during retraction. Since the hose is flexible (*id.*, Col. 1: l. 21), it requires external forces to maintain its uniformity, both on the top and bottom. Without these forces, the hose is likely to bunch up and/or get caught during retraction. The inner tube 102 provides upward forces on the hose during retraction and the entrapment tube 80 (the inner side 110 which comprises the “drag element”) provides the downward “drag” forces on the hose. Thus, “[a]s additional hose is pushed into the entrapment tube 80, the hose compacts while maintaining an essentially round cross-section.” *Id.*, Col. 4: ll. 22–24.

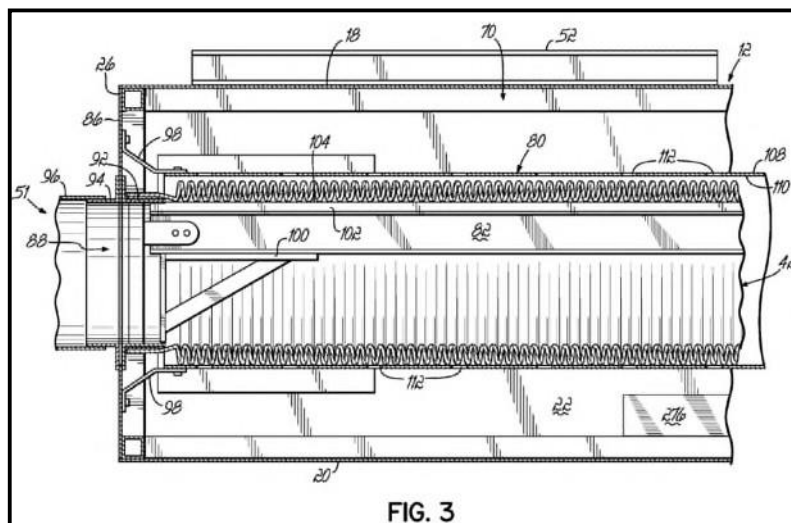
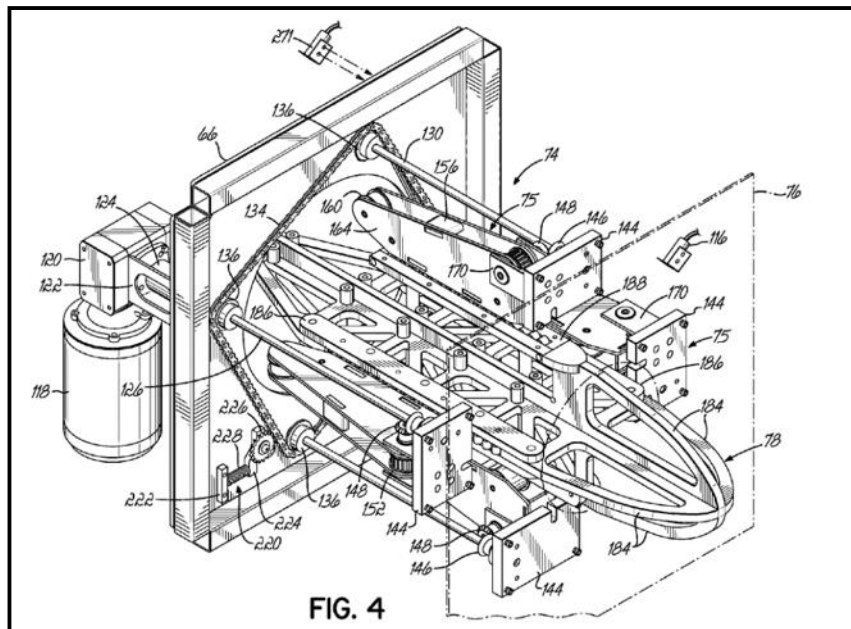


FIG. 3

FIG. 4 of the '297 patent illustrates a mechanized “drive unit/drive assembly” that is attached to the housing for extending and retracting the flexible hose into the housing. FIG. 4 shows a motor 118 which is mounted on a gearbox 120. Power from the motor is transmitted through a shaft coupler 124 to a main drive shaft 126. The main drive shaft is coupled to two secondary drive shafts 128, 130, and one manual drive shaft 132 by a roller chain 134. The secondary drive shafts 129, 130, and the manual drive shaft 132 operate the drive units through a series of pulleys and gears. The drive units are configured to engage the flexible hose and extract or retract the hose from or towards the container/housing. Thus, upon activation of the motor 118, the drive unit(s) are capable of mechanically extracting/retracting the flexible hose from the container 12 to the length necessary to safely attach to the aircraft.



II. Legal Standards

Patent infringement is the unauthorized production, use, sale, offer of sale, or importation of any patented invention during the term of the patent. 35 U.S.C. § 271(a). An infringement analysis

entails two steps. In the first step, the Court determines the meaning and scope of the patent claims asserted to be infringed. In the second step, the trier of fact compares the properly construed claims to the device accused of infringing. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) aff'd, 517 U.S. 370 (1996). The purpose of claim construction is to determine the meaning and scope of the patent claims alleged to be infringed. O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd., 521 F.3d 1351, 1360 (Fed. Cir. 2008). “It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” Innova/Pure Water, Inc. v. Safari Water Filtration Sys., 381 F.3d 1111, 1115 (Fed. Cir. 2004).

Claim construction is a matter of law. Markman, 517 U.S. at 372. “It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (citation omitted). While the Patent Office and patent examiners may give claims their broadest reasonable construction in reviewing patents and prospective patents, federal district courts are to give disputed claim terms their “ordinary and customary meaning,” or “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Phillips v. AWH Corp., 415 F.3d 1303, 1312, 1313 (Fed. Cir. 2005); see also Cuozzo Speed Techs., LLC v. Lee, 136 S. Ct. 2131, 2143 (2016) (contrasting the patent office’s use of “the broadest reasonable construction standard” with the district court’s use of the “ordinary meaning standard”); Prima Tek II, L.L.C. v. Polypap, S.A.R.L., 318 F.3d 1143, 1148 (Fed. Cir. 2003) (holding that there is a “heavy burden” in favor of using “the ordinary meaning of

claim language as understood by one of ordinary skill in the art”); Thorner v. Sony Computer Entm’t Am. LLC, 669 F.3d 1362, 1365–67 (Fed. Cir. 2012) (holding that a claim’s words “are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history”).

However, the preference for applying ordinary meanings in the district court may be overcome either “(1) where the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term; or (2) where the term chosen by the patentee so deprives the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used.” Prima Tek II, 318 F.3d at 1148 (citing Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999)). The inventor’s lexicography governs when the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess.” Allergan, Inc. v. Barr Labs., Inc., 501 F. App’x 965, 969–70 (Fed. Cir. 2013) (citations and quotations omitted). The patentee must “clearly express an intent” to redefine the term, Helmsderfer v. Bobrick Washroom Equip., Inc., 527 F.3d 1379, 1381 (Fed. Cir. 2008), and the standard for determining whether an inventor has provided such clear intent is “exacting.” Thorner, 669 F.3d at 1366; see also Ancora Techs. Inc. v. Apple, Inc., 744 F.3d 732 (Fed. Cir. 2014) (holding that “[p]assing references that do not amount to a redefinition or disclaimer” are insufficient to overcome ordinary meaning).

With the ordinary meaning standard established, “[t]he starting point for any claim construction must be the claims themselves.” Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). “If the claim language is clear on its face, then . . . consideration of the rest of the intrinsic evidence is restricted to determining if a deviation from the clear language of the claims is specified.” Interactive Gift Exp., Inc. v. Compuserve Inc., 256 F.3d 1323, 1331 (Fed. Cir.

2001). That said, the rest of the intrinsic evidence always plays a key role in providing context for the ordinary meaning of the claims, as a person of ordinary skill in the art is deemed to read the claim terms, not only in the context of the particular claims in which the disputed terms appear, but also in the context of the entire patent. Phillips, 415 F.3d at 1313; see also Eon Corp. IP Holdings v. Silver Spring Networks, 815 F.3d 1314, 1320 (Fed. Cir. 2016) (holding that a claim term’s ordinary meaning is not determined “in a vacuum” but “takes its definition from the context in which it was used by the inventor”) (citations and quotations omitted); Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1319 (Fed. Cir. 2005) (holding that a court “must look at the ordinary meaning in the context of the written description and the prosecution history”) (citations and quotations omitted).

Said context may be provided by the specification, as the specification of a patent “is always highly relevant to the claim construction analysis.” Vitronics, 90 F.3d at 1582. As such, the Federal Circuit has stated that it is “entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claims.” Phillips, 415 F.3d at 1317. In some cases, the inventor may provide within the specification a special definition of a claim term which differs from the term’s usual meaning; if so, “the inventor’s lexicography governs.” Id. at 1316. The inventor also may disclaim or disavow claim scope within the specification. Where “the inventor has dictated the correct claim scope . . . the inventor’s invention, as expressed in the specification, is regarded as dispositive.” Id. Specifications are also key if a claim element is recited in means-plus-function format, as such a claim’s specification “must contain sufficient descriptive text by which a person of skill in the field of the invention would know and understand what structure corresponds to the means limitation.” Enfish, LLC v. Microsoft Corp., 822 F.3d 1327 (Fed. Cir. 2016) (citations and quotations omitted).

However, while a district court may read patent claims in light of the specification, a court may not read limitations from the specification into the claim itself or read the specification to replace the claim. See United States v. Adams, 383 U.S. 39, 48–49 (1966) (“While the claims of a patent limit the invention, and specifications cannot be utilized to expand the patent monopoly, it is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.”) (internal citations omitted); see also Prima Tek II, 318 F.3d at 1148 (holding that “limitations may not be read into the claims from the written description”) (citation omitted); SanDisk Corp. v. Memorex Prod., Inc., 415 F.3d 1278, 1286 (Fed. Cir. 2005) (holding that “it is axiomatic that without more the court will not limit claim terms to a preferred embodiment described in the specification”); Tempo Lighting, Inc. v. Tivoli, LLC, 742 F.3d 973, 977 (Fed. Cir. 2014) (holding that “[i]n claim construction, this court gives primacy to the language of the claims, followed by the specification”). Even if every depicted embodiment of an invention shows a limitation, that alone is insufficient to overturn a claim’s plain meaning. See Unwired Planet, LLC v. Apple Inc., 829 F.3d 1353, 1359 (Fed. Cir. 2016) (holding that it is “not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit claims beyond their plain meaning”) (quotations and citations omitted). Admittedly, “there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification.” Comark Comm’ns, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed. Cir. 1988). But while the specification may be able to supply understanding of unclear terms, it can never override the clear meaning of the claim terms. See E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed. Cir. 1988).

In addition to the specification, a court also may examine the patent’s prosecution history for context when construing claim terms. Markman v. Westview Instruments, Inc., 52 F.3d 967, 980

(Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996). “Like the specification, the prosecution history provides evidence of how the [Patent and Trademark Office] and the inventor understood the patent.” Phillips, 415 F.3d at 1317; see also Tempo Lighting, Inc., 742 F.3d at 977 (holding that “the prosecution history, while not literally within the patent document, serves as intrinsic evidence for purposes of claim construction”). The prosecution history also may be helpful in determining whether the inventor disclaimed any particular interpretation during the prosecution of the patent. See Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005) (holding that the prosecution history’s purpose “is to exclude any interpretation that was disclaimed during prosecution” in order to prevent a term from being construed one way in the application and a different way against an accused infringer); see also DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1323 (Fed. Cir. 2001) (holding that the prosecution history “is considered to determine whether or not there were any express representations made in obtaining the patent regarding the scope and meaning of the claims”). When determining whether a party has disclaimed a particular interpretation, a court inquires “whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.” PODS, Inc. v. Porta Stor, Inc., 484 F.3d 1359, 1368 (Fed. Cir. 2007). That said, while it can be helpful in that respect, the prosecution history “often lacks the clarity of the specification and thus is less useful for claim construction purposes.” Phillips, 415 F.3d at 1317. For example, while prior art may be cited as part of the prosecution history and thus qualify as intrinsic evidence, it merits little weight if “it was not created by the patentee in attempting to explain and obtain the patent.” Acumed LLC v. Stryker Corp., 483 F.3d 800, 809 (Fed. Cir. 2007) (quotations and citations omitted). Finally, the prosecution history also may not “enlarge, diminish, or vary” the claims themselves. Chimie, 402 F.3d at 1380–82 (quotation omitted).

In addition to examining the intrinsic evidence, a court may also consider certain extrinsic evidence, “including expert and inventory testimony, dictionaries, and learned treatises.” Markman, 52 F.3d at 980. While extrinsic evidence can shed light on claim meaning, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language” and “is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” Phillips, 415 F.3d at 1317, 1319. Indeed, while dictionaries, treatises, and industry practice “are often important in interpreting claims,” they may not “contradict claim meaning that is unambiguous in light of the intrinsic evidence.” ArcelorMittal France v. AK Steel Corp., 700 F.3d 1314, 1320 (Fed. Cir. 2012) (citations and quotations omitted); see also Phillips, 415 F.3d at 1322–23 (holding that courts may “rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents”) (quoting Vitronics, 90 F.3d at 1584 n.6).

Additionally, expert testimony “can be useful to a court for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to ensure that a court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” Phillips, 415 F.3d at 1318. However, “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court.” Id. Further, a court must disregard any expert testimony “that is clearly at odds with . . . the written record of the patent.” Key Pharms. v. Hercon Labs. Corp., 161 F.3d 709, 716 (Fed. Cir. 1998).

Claims may also require analysis for indefiniteness, as indefiniteness is “inextricably intertwined with claim construction.” Energizer Holdings, Inc. v. International Trade Comm’n, 435 F.3d 1366, 1368 (Fed. Cir. 2006). “[A] patent is invalid for indefiniteness if its claims, read in light

of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” Dow Chem. Co. v. Nova Chems. Corp. (Canada), 803 F.3d 620, 625 (Fed. Cir. 2015), cert. denied, 136 S. Ct. 2452 (2016) (citing Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2124 (2014)); see also Interval Licensing, LLC v. AOL, Inc., 766 F.3d 1364, 1371–73 (Fed. Cir. 2014), cert. denied, 136 S. Ct. 59 (2015) (holding that a single example of the term “unobtrusive manner” in the specification did not outline the claims to a skilled artisan with reasonable certainty). Definiteness requires a court to weigh “inherent limitations of language,” the fact that patents are addressed to people who are “skilled in the relevant art” instead of lawyers or the public, and “some modicum of uncertainty” against the precision required to “afford clear notice of what is claimed” and thereby allow the public to determine what inventions are still possible. Nautilus, 134 S. Ct. at 2128–29 (internal citations and quotations omitted). As such, the standard “mandates clarity, while recognizing that absolute precision is unattainable.” Id. at 2129; see also Minerals Separation, Ltd. v. Hyde, 242 U.S. 261, 270 (1916) (“the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter”). Also, indefiniteness is often analyzed prior to construing claims, since “[i]f a claim is indefinite, the claim, by definition, cannot be construed.” Enzo Biochem, Inc. v. Applera Corp., 599 F.3d 1325, 1332 (Fed. Cir. 2010). Indefiniteness must be established with clear and convincing evidence. See Biosig Instruments, Inc. v. Nautilus, Inc., 783 F.3d 1374, 1377 (Fed. Cir. 2015). That standard of proof stems from the presumption of validity afforded issued patents. See Microsoft Corp. v. i4i Ltd. Partnership, 564 U.S. 91, 102 (2011)).

III. Disputed Terms

Pursuant to the Local Patent Rules, the parties have both identified the following terms for construction by the Court:

- “drive unit” (’201 patent, Claims 1 and 14; ’297 patent, Claim 1)
- “[drive unit] attached to the housing” (’201 patent, Claims 1 and 14)
- “[drive unit] inside the housing proximate the air outlet end” (’297 patent, Claim 1)
- “[first/second] end [of the hose/housing]” (’201 patent, Claims 1, 9, 14 and 17; ’297 patent, Claim 1)
- “top [of the inner tube]” (’201 patent, Claims 1 and 14)
- “bottom [of the inner tube]” (’201 patent, Claims 1 and 14)
- “top end [of the housing]” (’201 patent, Claim 17)
- “bottom end [of the housing]” (’201 patent, Claim 17)
- “attaching [the first end of the hose] and [the housing to a source of conditioned air]” (’201 patent, Claim 9)
- “attaching [the first end of the housing to a source of conditioned air]” (’201 patent, Claim 17)
- “drag surface” (’297 patent, Claim 1)
- “inlet end is proximate the first end of the housing” (’297 patent, Claim 1)
- “drive force limiter” (’297 patent, Claim 6)

While this initial list is long, the parties have narrowed the claims that remain in dispute through their construction claims briefs. The Court, therefore, focuses on those claim terms that remain in dispute. In short, Defendant continues to claim that the following terms are indefinite: “[drive unit] attached to the housing,” “substantially closed housing,” and “drag surface.” Furthermore, the parties now agree on the construction of several terms, leaving only the construction of the following terms in dispute: “drive unit,” “[drive unit] attached to the housing,” and “[drive unit] inside the housing proximate the air outlet end.”

IV. Indefinite Terms

It bears repeating that Defendant, as the party alleging indefiniteness, holds the burden to demonstrate that any term of the ’207 patent is indefinite and must do so by clear and convincing evidence. See Dow Chem. Co. v. NOVA Chems. Corp., 809 F.3d 1223, 1227 (Fed. Cir. 2015) (“Th[e] presumption of validity ‘imposes the burden of proving invalidity on the attacker. That burden is constant and never changes and is to convince the court of invalidity by clear evidence.’” (quoting American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1360 (Fed. Cir.

1984)). Accordingly, it is incumbent upon Defendant, as the party alleging indefiniteness, to “prove up” its allegation in the first instance. Paramount to such a showing is “whether the written description adequately sets forth the structure corresponding to the claimed [invention],” viewing the specification “from the perspective of a person skilled in the art.” Telcordia Techs., Inc. v. Cisco Sys., Inc., 612 F.3d 1365, 1376 (Fed. Cir. 2010).

a. “[Drive Unit] Attached to the Housing”

Defendant BGSE throws out a variety of hypothetical uncertainties it believes a POSITA might face when determining whether the drive unit is “attached to the housing,” as claimed in Claims 1 and 14 of the ’201 patent. See Doc. No. 35 at 4–5.¹ But missing from BGSE’s argument that the claim is indefinite is a key element: “who is the POSITA?”

BGSE fails to provide evidence of the qualifications for a POSITA, nor did BGSE present any evidence from a purported POSITA as to the suggested uncertainties about what “attached to the housing” means. Thus each “uncertainty” that BGSE alleges a POSITA might face is purely conjecture and attorney argument. This is insufficient to prove indefiniteness.

Without evidence from a POSITA, the Court cannot conclude this claim is indefinite. The claims in the ’201 patent are sufficiently definite so as to set forth what is required for the “drive unit to be attached to the housing.” First, “attached” is an ordinary and common phrase for “joined” or “fastened” that even a lay person, who is not a POSITA, can understand. Second, the requirement that the drive unit be “attached” is not a limitation. In other words, for “attached” to be sufficiently definite, there is no requirement that the claim recite a drive unit “detachably attached to the housing” or “attached immediately adjacent the housing,” as BGSE suggests. What is required for a

¹ The Court cites to the ECF imprinted page numbers, not the filing’s native page number.

POSITA to understand is that the drive unit need only be attached to the housing in a way that permits “the drive unit to engage[] the flexible hose and ... expand[] the length of the flexible hose outward with respect to the housing.” Doc. No. 1-2 (’201 patent), Col. 6: ll. 3-6, 6:58-62. Since BGSE fails to identify the level of skill for a POSITA or testimony from a POSITA, it is in no position to argue that a POSITA would have trouble discerning the scope of the claims.

Furthermore, the claim language is highly instructive and provides ample context to a POSITA regarding the scope of the phrase. First, the drive units must be capable of engaging the hose and expanding/moving the hose. Second, the drive units may be attached to the housing in any way, shape, or form, so long as they engage the hose and can expand/move the hose. And third, the drive units may be attached to the housing in any way, shape, or form so long as they are able to expand the hose in a manner that moves the house outward with respect to the housing. Thus, the type of attachment mechanism, or whether the attachment is “direct” or “indirect,” are unnecessary limitations that do not create indefiniteness. There is no prohibition on a claim term encompassing multiple embodiments. See Pacing Techs., LLC v. Garmin Int’l, Inc., 778 F.3d 1021, 1026 (Fed. Cir. 2015) (“[When] the patent describes multiple embodiments, every claim does not need to cover every embodiment.”).

Finally, BGSE argues that the ’201 patent “claims do not match the patent’s disclosure.” Doc. No. 35 at 10. This is not the proper standard. Rather, claim indefiniteness demands only that the meaning of the claim term, when read in light of the specification, informs those skilled in the art about the scope of the invention with reasonable certainty. Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 910 (2014). Whether the specification illustrates a preferred embodiment that describes “drive units” as inside the “retractor,” is immaterial to whether the language of Claims 1 and 14 is sufficiently definite.

Accordingly, BGSE fails to present clear and convincing evidence that the phrase “[drive unit] attached to the housing” is indefinite.

b. “Substantially Closed Housing”

The phrase “substantially closed housing” appears in Claim 1 of the ’297 patent. Claim 1 states, in relevant part, “[a]n apparatus for providing conditioned air to an aircraft comprising: a substantially closed housing having first and second ends, having an air inlet at said first end, and an air outlet at said second end” Doc. No. 1-1 (’297 patent), Col. 9: ll. 25–29.

The phrase “substantially” is a common word of degree used in patent parlance. “Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” Eibel Process Co. v. Minn. & Ont. Paper Co., 261 U.S. 45, 65–66 (1923). Here, the claim language itself provides a POSITA with the requisite certainty as to what “substantially closed housing” entails. A POSITA can reasonably understand that the housing contains openings at each end (i.e., “an air inlet at said first end, and an air outlet at said second end”), which keep the housing from being “completely closed.” A POSITA would also understand that the remainder of Claim 1 makes no reference to any other apparatus that requires the housing to possess openings. Thus, the words of the claim alone provide a POSITA enough certainty to understand the scope of the phrase “substantially closed housing.”

When read in the full context of the invention, the phrase “substantially closed housing” gains even more certainty. ’297 patent FIGS. 1 and 1A are illustrative. “FIG. 1 illustrates a hose management system 10 comprised of a container 12, a mounting system 14, and an air conduit 16. The container 12 has a top 18, a bottom 20, a left side 22, a right side 24, an inlet end 26 and an outlet end 28.” Id., Col. 3: ll. 27–30. “The container 12 comprises a frame 62 covered with a skin 64 ... of material such as sheet metal.” Doc. No. 1-1, Col. 3: ll. 53–55. A POSITA can reasonably

discern, based on this description alone, that the container 12 (i.e., the “housing”) is substantially closed. The presence of a top 18, bottom 20, left side 22 and right side 24, all of which are covered with a sheet metal skin 64, make clear to a POSITA that the housing is “substantially closed.”

Furthermore, an objective of the ’297 patent is to ensure the hose is optimally pliable (id., Col. 2: ll. 7–11); thus, it is important to control the temperature within the housing. “[A] heat-control element 276 [is] used to maintain the temperature of the air in the front compartment and rear compartment. Controlling the temperature of the air maintains the hose at a temperature that is most beneficial for pliable compacting and extension.” Id., Col. 7: ll. 10–14. A POSITA would understand that the housing must be “substantially closed” to maintain internal temperature control. Except for the air inlet end and air outlet end, a POSITA would recognize what is required of a “substantially closed housing” to maintain such temperature control.

Accordingly, the Court concludes that BGSE cannot satisfy its burden of proving that the phrase “substantially closed housing” is indefinite in light of the strong presumption in favor of validity and collection of intrinsic evidence contained in the ’297 patent.

c. “Drag Surface”

The phrase “drag surface” appears in Claim 1 of the ’297 patent. Claim 1 states, in relevant part, “[a]n apparatus for providing conditioned air to an aircraft comprising ... a cylindrical tube incorporated within the housing having a drag surface in contact with the outside surface of a hose. Id., Col. 9: ll. 25–31. Immediately, a POSITA can discern that the collapsible hose is in contact with the inner surface of the cylindrical tube. The inner surface of the cylindrical tube is a “drag” surface because when the collapsible hose is retracted into the housing, the outside surface of the hose “drags” against the inner surface of the cylindrical tube. A POSITA would recognize the benefits of having a “drag surface” to prevent bunching up of the hose during retraction into the housing.

The specification provides further guidance as to the meaning of the phrase “drag surface.”

FIGS. 2A and 3 of the ’297 patent described above are illustrative.

“FIG. 2A illustrates the hose being retracted by the drive assembly 74 and pushed along the beam cap 102 As additional hose is pushed into the entrapment tube 80, the hose compacts while maintaining an essentially round cross-section. The entrapment tube has an outside surface 108 and an inside surface 110 ... [t]he inside surface 110 contacts the hose, creating drag so that the hose will more closely and uniformly compact along the support beam 82.”

Id., Col. 4: ll. 20–31. After consulting the specification and drawings of the ’297 patent, a POSITA would reasonably understand that the “drag surface” is intended to permit uniform compaction of the collapsible hose within the housing. FIG. 3 (below) instructs further the hose 42 is capable of collapsing into a tight “bunch” during retraction. Since the hose is flexible (id., Col. 1: l. 21), it requires external forces to maintain its uniformity, both on the top and bottom. Without these forces, the hose is likely to bunch up and/or get caught during retraction. The inner tube 102 provides upward forces on the hose during retraction and the entrapment tube 80 (the inner side 110 which comprises the “drag element”) provides the downward “drag” forces on the hose. Thus, “[a]s additional hose is pushed into the entrapment tube 80, the hose compacts while maintaining an essentially round cross-section.” Id., Col. 4: ll. 22–24.

The “drag surface” that is disclosed in Claim 1 of the ’297 patent is clearly defined in terms of its objectives and limitations. All of this is capable of being discerned by a POSITA consulting only the intrinsic evidence. Consequently, BGSE cannot satisfy its high burden of proving that the phrase “drag surface” is indefinite in light of the strong presumption in favor of validity and collection of intrinsic evidence contained in the ’297 patent.

V. Claim Terms for Construction

1. “Drive Unit”

Claims	Plaintiffs' Proposed Construction	BGSE's Proposed Construction
'201 Patent: Claims 1, 14	"an electro-mechanical assembly or apparatus that selectively pushes the outlet end in a first direction away from the inlet end, or pulls the outlet end in a second direction towards the inlet end"	"motor-powered belt or equivalent that rotates to selectively push the outlet end in a first direction away from the inlet end, or pull the outlet end in a second direction towards the inlet end"
'297 Patent: Claim 1		

The phrase “drive unit” appears in Claims 1 and 14 of the '201 patent, as well as in Claim 1 of the '297 patent. “Drive unit” refers to the mechanism that “engages the flexible hose and ... expands the length of the flexible hose outward with respect to the housing.” Doc. No. 1-2 ('201 patent), Col. 6: ll. 3–6. It also references the mechanism that “contacts the outside surface of the hose to selectively push the outlet end in a first direction away from the inlet end or pull the outlet end in a second direction towards the inlet end.” Doc. No. 1-1 ('297 patent), Col. 9: ll. 41–45. Plaintiffs contend the “drive unit” can be any compatible electro-mechanical assembly, while BGSE contends it must contain a “belt or equivalent that rotates.”

Plaintiffs' proposed construction is supported by the wording of the claims themselves, which is the proper starting point for any claim construction exercise. Phillips, 415 F.3d at 1312. In the '201 patent, neither Claim 1 nor Claim 14 contains any limitation that the “drive unit” must contain or be operable via a “belt or equivalent that rotates.” Rather, the claim language encompasses all “drive unit” variants capable of engaging the flexible hose and moving it in the directions claimed (i.e., inward and outward). See Doc. No. 1-2 ('201 patent), Col. 6: ll. 3-6; 6:59–63. The same goes for the '297 patent. See Doc. No. 1-1 ('297 patent), Col. 9: ll. 40–45. Indeed, dependent Claim 10 of the '297 patent distinguishes between a “drive unit” generally and a “drive unit” that “comprises at least one belt that contacts the surface of the hose.” Doc. No. 1-1 ('297 patent), Col. 10: ll. 49–50. Thus, the inherent nature of Claim 1 of the '297 patent is distinct from that of dependent Claim 10 of the '297 patent, and the Court may not read the “belt” limitation into

the disclosure of Claim 1 of the '297 patent. Such would effectively limit the scope of Claim 1 to that of dependent Claim 10. See Nazomi Commc'ns, Inc. v. ARM Holdings, PLC, 403 F.3d 1364 (Fed. Cir. 2005).

Based on claim language alone, a POSITA would understand a “drive unit” to include any possible “drive unit” variant, so long as the “drive unit” is capable of engaging/contacting the hose and moving the hose in the manner claimed. Accordingly, the Court adopts Plaintiffs’ proposed construction of the term “drive unit” as referring to an “an electro-mechanical assembly or apparatus that selectively pushes the outlet end in a first direction away from the inlet end, or pulls the outlet end in a second direction towards the inlet end” without limiting the “drive unit” to requiring a belt or equivalent thereto.

2. “[Drive Unit] Attached to the Housing”

Claims	Plaintiffs’ Proposed Construction	BGSE’s Proposed Construction
<u>'201 Patent:</u> Claims 1, 14	No additional construction necessary beyond “drive unit” above	[drive unit] directly joined to the housing

Claims 1 and 14 of the '201 patent contain the phrase “[drive unit] attached to the housing.” Doc. No. 1-2 ('201 patent), Col. 6: 1. 3; 6:59. Plaintiffs propose that no further construction is necessary for this phrase beyond the construction attributable to “drive unit.” On the other hand, BGSE proposes that the phrase “[drive unit] attached to the housing” is indefinite, or alternatively, that the phrase should be construed to clarify that the “drive unit” is “directly joined” to the housing.

Again, the claim language supports Plaintiffs’ proposed construction. Both Claims 1 and 14 of the '201 patent are silent as to where or how the “drive unit” is attached to the housing. The claims do not explicitly require that the “drive unit” be “directly joined” to the housing, nor do the claims indicate that “attached” means “directly adjacent,” or “touching,” as is proposed by BGSE.

Instead, the claims only require that the “drive unit” be attached to the housing, which can be accomplished through a variety of means. In the ’201 patent, for instance, the “drive units” are attached to the housing as a part of a whole.

In addition to the claim language, the specification explains that the “drive unit” is not limited to being “directly joined to the housing.” The ’201 patent specification identifies two major portions of the invention: (1) a container; and (2) a retractor. Doc. No. 1-2 (’201 patent) at Abstract; Col. 3: ll. 23–25. Within the retractor are “four drive units 122 placed around the inner tube 102.” Id., Col. 4: ll. 16–17. Thus, the “drive unit” is an internal component of the “retractor,” which, itself, is “attached to the second end 116 of the housing 104.” Id., Col. 4: ll. 12-13; See FIG. 1 of the ’201 patent.² The “drive units” are attached to the housing insofar as they comprise a discreet component within the “retractor.”

In other words, the “drive units” are a part of a whole, and the whole (the retractor) is directly attached to the housing. BGSE’s proposed construction would add an unclaimed and unsupported limitation to the patent – that the drive unit 122 is directly joined to the housing, not just the retractor. This runs afoul of the well-settled proscription against incorporating extraneous limitations into the claims under the guise of claim construction. See Renishaw, 158 F.3d at 1249; Specialty Composites v. Cabot Corp., 845 F.2d 981, 988 (Fed. Cir. 1988). Accordingly, the Court rejects BGSE’s proposed construction, which seeks to add limitations that are not present and adopts

² Plaintiffs note that the specification of the ’201 patent identifies the drive units with reference number 122. The specification does not identify any element or apparatus as 120. However, FIG. 1 identifies the drive units with reference numeral 120, which Plaintiffs contend is a typo. For the purposes of this claim construction, Plaintiffs posit that FIG. 1’s reference to “120” should actually reference to “122.”

Plaintiffs’ proposed construction of the term “[Drive Unit] Attached to the Housing” as requiring no additional construction necessary beyond “drive unit.”

3. “[Drive Unit] Inside the Housing Proximate the Air Outlet End”

Claims	Plaintiffs’ Proposed Construction	BGSE’s Proposed Construction
<u>’297 Patent:</u> Claim 1	"[drive unit] inside the housing closer to the air outlet at the second end of the housing than to the air inlet at the first end of the housing."	"motor-powered belt or equivalent that rotates to selectively push the outlet end in a first direction away from the inlet end, or pull the outlet end in a second direction towards the inlet end"

Claim 1 of the ’297 patent includes the phrase “a drive unit inside the housing proximate the air outlet end.” Doc. No. 1-1 (’297 patent), Col. 9: l. 41. Plaintiffs propose that “proximate” means “closer to” one end of the housing than the other (i.e., the air outlet end versus the air inlet end). BGSE, on the other hand, incorrectly contends that “proximate” means “located at” (i.e., the drive unit is congruent with the air outlet end).

The literal wording of the claim term indicates that the “drive unit” is not at one end of the housing; rather, it is proximate one end. The word “proximate” is a common word of degree and, in the context of the ’297 patent, is used to describe the degree of spatial closeness (or distance) between the drive unit [assembly] 74 and the air outlet end 28 of the housing [container] 12. BGSE’s proposed construction subverts the spatial degree aspect of the claim.

The claims of the ’297 patent distinguish between mechanisms that are “at” a location versus mechanisms that are “proximate” a location. For example, Claim 1 recites “at” limitations for “[a]n apparatus for providing conditioned air to an aircraft comprising: a substantially closed housing ... *having an air inlet at said first end, and an air outlet at said second end.*” Doc. No. 1-1 (’297 patent), Col. 9: ll. 27–29 (emphasis added). Claim 4 recites “[t]he apparatus of claim 3 wherein ...

the second circumferential reflective strip is located at the outlet end.” Id., Col. 10: ll. 22–25 (emphasis added).

The ’297 patent also contains “proximate” limitations which are distinct from the “at” limitations. Claim 1 discloses, “[a]n apparatus for providing conditioned air to an aircraft comprising: longitudinally collapsible hose ... *wherein ... the inlet end is proximate the first end of the housing.*” *Id.*, Col. 9: ll. 32–40 (emphasis added). Claim 3 discloses a similar limitation, “[a]n apparatus for providing conditioned air to an aircraft ... *wherein ... the inlet end is proximate the air inlet end.*” *Id.*, Col. 9: ll. 50–51; 10:6–9 (emphasis added). The claims have separate meanings for mechanisms characterized as being “at” a location versus mechanisms characterized as being “proximate” a location. BGSE’s proposal ignores this distinction.

In addition to the claims, the drawings and specification of the ’297 patent provide evidence that the “drive unit” is intended to be “close to” or “proximate” the air outlet end 28 and not immediately “at” the air outlet end. FIG. 1A depicts “[a] middle cap plate 66 [which] separates a larger rear compartment 70 from a smaller front compartment 72” within the housing [container] 12. *Id.*, Col. 3: ll. 53–60. Contained in and around the front compartment 70 is the drive assembly 74. *Id.* Significantly, the “drive assembly” 74 comprises a motor 118 mounted on a gearbox 120 which is fastened on the aft of the mid cap plate 664 and a chain adjuster 192, also located aft of the middle cap plate 66. *Id.*, Col. 5: ll. 28–30. As such, the front compartment 72 possesses only part of the drive assembly 74. Additional aspects of the drive assembly 74 such as the motor 118, gearbox 120, and chain adjuster 192 are external to the front compartment 72 and thus not congruent or “at” the air outlet end. The sheer presence of an entire front compartment 72 further indicates that the drive assembly 74 is merely proximate or “close to” the air outlet end, not congruent or at the air outlet end.

Accordingly, the Court adopts Plaintiffs’ proposed construction for the phrase “[drive unit] inside the housing and proximate the air outlet end” and rejects BGSE’s argument that limitations should be added to the claims.

4. Other Claims for Construction

In the interests of judicial efficiency and narrowing the issues for the Court, Defendant has opted not to pursue its proposed construction and agreed to accept Plaintiffs’ proposed construction of the following claims:

<u>Claims</u>	<u>Plaintiffs’ Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
<u>’201 Patent:</u> Claims 1, 9, 14, 17 <u>’297 Patent:</u> Claim 1	No construction necessary.	“terminal end”

<u>Claims</u>	<u>Plaintiffs’ Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
<u>’201 Patent:</u> Claims 1, 14	No construction necessary.	Plain and ordinary meaning; to the extent construction is necessary: “highest part [of the inner tube]” or “lowest part [of the inner tube]”

<u>Claims</u>	<u>Plaintiffs’ Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
<u>’201 Patent:</u> Claim 17	“first end [of the housing]” or “second end [of the housing]”	Plain and ordinary meaning; to the extent construction is necessary: “end [of the housing] located at the highest part” or “end [of the housing] located at the lowest part]”

<u>Claims</u>	<u>Plaintiffs’ Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>

'201 Patent: Claims 9, 17	No construction necessary.	<p>“directly joining [the first end of the hose] and [the housing to a source of conditioned air], with both the first end of the hose and the housing being fixed to the source of conditioned air at the same location” and</p> <p>“directly joining [the first end of the housing to a source of conditioned air]”</p>
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<u>Claims</u>	<u>Plaintiffs’ Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
'297 Patent: Claim 1	No construction necessary.	“the end of the hose toward the air inlet is approximately even with the first end of the housing”

<u>Claims</u>	<u>Plaintiffs’ Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
'297 Patent: Claim 6	“force-sensing circuitry that adjusts the power needed, based on particular conditions present, to selectively push or pull the hose in the desired direction”	“torque-sensing circuitry that limits the force applied by the drive unit”

5. Conclusion

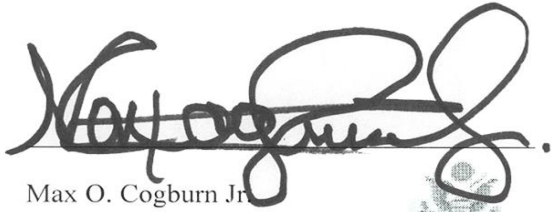
Based on the foregoing, the Court provides the following claim constructions:

<u>Claims</u>	<u>Disputed Term</u>	<u>Court’s Construction</u>
'201 Patent: Claims 1, 14	Drive Unit	“an electro-mechanical assembly or apparatus that selectively pushes the outlet end in a first direction away from the inlet end, or pulls the outlet end in a second direction towards the inlet end”
'297 Patent: Claim 1		

<u>'201 Patent:</u> Claims 1, 14	[Drive Unit] Attached to the Housing	No additional construction necessary beyond “drive unit” above.
<u>'297 Patent:</u> Claim 1	[Drive Unit] Inside the Housing Proximate the Air Outlet End	“inside the housing closer to the air outlet at the second end of the housing than to the air inlet at the first end of the housing”
<u>'201 Patent:</u> Claims 1, 9, 14, 17 <u>'297 Patent:</u> Claim 1	[First/Second] End [of the Hose/Housing]	No construction necessary.
<u>'201 Patent:</u> Claims 1, 14	Top [of the Inner Tube] and “Bottom [of the Inner Tube]	No construction necessary.
<u>'201 Patent:</u> Claim 17	Top End [of the Housing]” and “Bottom End [of the Housing]	“first end [of the housing]” or “second end [of the housing]”
<u>'201 Patent:</u> Claims 9, 17	Attaching [the First End of the Hose] and [the Housing to a Source of Conditioned Air]” and “Attaching [the First End of the Housing to a Source of Conditioned Air]	No construction necessary.
<u>'297 Patent:</u> Claim 1	Inlet End is Proximate the First End of the Housing	“the end of the hose toward the air inlet is approximately even with the first end of the housing”
<u>'297 Patent:</u> Claim 6	Drive Force Limiter	“force-sensing circuitry that adjusts the power needed, based on particular conditions present, to selectively push or pull the hose in the desired direction”

IT IS SO ORDERED.

Signed: June 1, 2021

A handwritten signature in black ink, appearing to read "Max O. Cogburn Jr.", written over a horizontal line. The signature is stylized with large loops and a trailing flourish.

Max O. Cogburn Jr.
United States District Judge